CLAIMS

1. (Currently amended) ~~Method~~ A method of keying, in a space presenting two spatial dimensions and one temporal dimension, a signal S measured in positions U subject to an uncertainty, from a set of N signals measured in determined positions, the N +1 signals having their temporal origin in a same plane, ~~the~~ said method ~~involving:~~ comprising the steps of

re-sampling the N + 1 signals in order to place them all in an identical sampling range ~~,~~ ;

filtering the signal S in order to place it in a range of frequencies that is identical to that of the N signals ~~,~~ ;

~~and wherein the method also involves:~~

defining for each position U associated with the measurements of the signal S a same neighbourhood of places V in the spatio-temporal space centred on the position U ~~,~~ ;

producing a layered neural network RN^v for each location V in the neighbourhood of U, each network having an entry vector of dimension N associated with the measurements of the N signals and a scalar exit associated with a measurement of the signal S ~~,~~ ;

for each neural network RN^v, defining a learning set such that the entries are the collection of all the vectors of measurements of the N signals situated at the locations V and the exits are the collection of the values of the signal S at the positions U for all the positions U ~~,~~ ;

fixing a predetermined number of iterations Nit for all the neural networks and launching the learning phases of all the networks ~~,~~ ;

for each neural network RN^v, calculating the value of the integral ~~I:~~ Σ^v of the function giving the error committed by the network at each iteration, from iteration 1 to iteration Nit ~~.~~ ;

for each surface spatial position V_k of the neighbourhood with coordinates (~~Xk,Yk,To~~ x_k, y_k, t_0), selecting in the time dimension the pair of locations $V1_k$(~~Xk~~ x_k, ~~Yk~~ y_k, t_1), $V2_k$(~~Xk~~ x_k, ~~Yk~~ y_k, ~~h~~ t_2), of the neighbourhood which correspond to the two smallest local minima of the two integrals (~~LV1, LV~~ $\Sigma^{v1}{}_k$, $\Sigma^{v2}{}_k$) ~~.~~ ;

for each surface spatial position V_k of the neighbourhood, retaining from among the two positions ~~Vh(Xk,Yk,~~ $V1_k(x_k, y_k, t_1)$, $V2_k$(~~Xk~~ x_k,~~Yk~~ y_k, ~~h~~ t_2) the position V_m, for which the signal estimated by the respective neural networks ~~RNV1~~ $RN^{v1}{}_k$ and $RN^{v2}{}_k$ presents a maximum variance ~~.~~ ; and

choosing from among the positions V_m the position ~~Vcal~~ V_{cal} for which the integral ~~IV m~~ $\Sigma^v{}_m$ is minimum.

2. (Currently amended) ~~Method~~ The method according to claim 1, wherein the use of the neural networks comprises:

defining for each position U associated with the measurements of the signal S a same neighbourhood of places V in the spatia-temporal space centred on the position U ~~.~~ ;

producing a layered neural network RN^v for each location V in the neighbourhood of U. each network having an entry vector of dimension N x M associated with the measurements on a time window of size M centred on V of the N signals and a scalar exit associated with a value of the signal S ~~.~~ ;

for each neural network, defining a learning set such that the entries are the collection of all the vectors of measurements taken in a time window of size M centred on V for the N signals and the exits are the collection of the values of the signal S at the positions U for all the positions U ~~,~~ ;

fixing a predetermined number of iterations Nit for all the neural networks and launching the learning phases of all the networks ~~,~~ ;

for each neural network RN^v, calculating the value of the integral ~~I,V~~ $\sum^v$ of the function giving the error committed by the network at each iteration, from iteration 1 to iteration Nit ~~,~~ ;

for each surface spatial position Vk of the neighbourhood with coordinates (~~Xk,Yk.tO~~ x_k, y_k, t_0), selecting in the time dimension the pair of locations $V1_k$(~~Xk~~ x_k,~~Yk~~ y_k, t_1), $V2_k$(~~Xk~~ x_k,~~Yk~~ y_k, t_2), of the neighbourhood which correspond to the two smallest local minima of the two integrals (~~Iv~~ $\sum^{v1}{}_k$, ~~:EV~~ $\sum^{v2}{}_k$) ~~,~~ ;

for each surface spatial position V_k of the neighbourhood, retaining from among the two positions $V1_k$(~~Xk~~ x_k,~~Yk~~ y_k, t_1) ~~,~~ , $V2_k$(~~Xk~~ x_k,~~Yk~~ y_k, t_2) the position V_m, for which the signal estimated by the respective neural networks ~~RNV1~~ $RN^{v1}{}_k$ and $RN^{v2}{}_k$ presents a maximum variance ~~,~~ ; and

choosing from among the V_m positions the position Veal for which the integral ~~Lvm~~ $\sum^v{}_m$ is minimum.